

*REMARKS/ARGUMENTS*

In response to the Office Action mailed October 4, 2005, Applicants amend their application and request reconsideration. In this Amendment, claims 2 and 5 are cancelled and new claim 14 is added so that claims 1, 3, 4, and 6-14 are now pending.

Claim 5 was objected to as seemingly incomplete. The claim is supported in the patent application in the paragraph on page 8 in lines 2-4. Claim 5 pertains to a step in a method of making an optical switch. Therefore, that claim is cancelled but forms the basis of new claim 14 which describes annealing of the optical switch after formation of the notch at the switching portion by cleavage of the polymer film of the optical switch.

Claims 2, 8, 9, 12, and 13 were stated to be allowable if rewritten in independent form. In this Amendment claim 2 is rewritten in independent form as amended claim 1. A substantial rearrangement of claim 1 is made in the process of combining examined claims 1 and 2. This rearrangement is intended to clarify the claim and not to change its scope. Thus, amended claim is allowable as are the claims that depend from claim 1, namely claims 3 and 4.

Claim 6 is amended for clarity and is similar, in large measure, to claim 1. Original and amended claim 6 is supported by the description in the patent application at pages 12 and 13 with respect to Figures 14B and 15B. The notch in the polymer film is made by pressing the rear side of the film while the film is clamped in a cleavage keep plate. The cleavage keep plate has a cleavage through hole larger in area than the switching through hole of the switching keep plate. The polymer film may be plastically, i.e., permanently, deformed in creating the notch. The plastic deformation occurs at the periphery of the cleavage through hole. The switching through hole is smaller in area than the cleavage through hole. Therefore, when the polymer film is clamped in the switching keep plate, the plastically deformed portions are clamped and do not adversely affect the switching characteristics of the optical switch.

Claim 7 is the sole independent method claim. That claim has been rewritten for clarity. Since claims 8, 9, 12, and 13 are not substantively changed, those claims remain

allowable notwithstanding the amendment of their parent claim 7. Accordingly, there is no further discussing regarding those dependent claims.

The invention pertains to an optical switch, useful in switching light signals in optical fiber systems. As demonstrated by the publication supplied in the Information Disclosure Statement and the publication cited by the Examiner, the fundamental switch is known in the art. That fundamental optical switch includes a polymer film that has an optical waveguide. A notch passes through part of the polymer film, including the optical waveguide. The term notch means a severed portion of the film having a finite length. When the film is deformed at the notch, surfaces that are otherwise in contact physically and that transmit light are separated from each other. Thus, the propagation of light through the optical waveguide where the surfaces are separated is interrupted. Displacement of the polymer film opposite the notch is generally produced by a protruding driving member, such as a rod, that deflects and deforms the polymer film sufficiently to separate the surfaces of the notch without causing permanent deformation of the polymer switch. Permanent deformation is avoided so that when the pressure applied by the driving member is released, the two surfaces of the polymer film with the notch return to the undisturbed position, in contact with each other, and provide a continuous light propagation path.

While claim 1 and its dependent claims are directed to an optical switch of this kind, the important part of the invention disclosed in the patent application is directed to the manufacture of the optical switch. It has been found that when the notch is formed in the polymer film by cutting with a blade, the resulting surfaces can have undesirable characteristics, affecting optical characteristics and the transmission of light. Thus, the invention provides an improved method of manufacturing the optical switch.

As described in claim 7, a starting groove is formed in a first surface of the polymer film from which the optical switch is made. The polymer film is clamped in a keep plate. The keep plate has an opening passing through the plate referred to as a switching through hole. The switching through hole has an axis that is generally perpendicular to the polymer film that is clamped. The starting groove may be formed before or after clamping of the polymer film. However, it is important that the starting

groove be relatively centrally located within the switching through hole. Then, a driving member is used to deflect the film at the opposite side of the film from the location of the starting groove. The displacement causes stress within the polymer film leading to the initiation and the propagation of a crack that cleaves the film and forms the notch in the polymer film. The cracking may be induced by repeatedly pressing and withdrawing the pressing member against the second side of the polymer film.

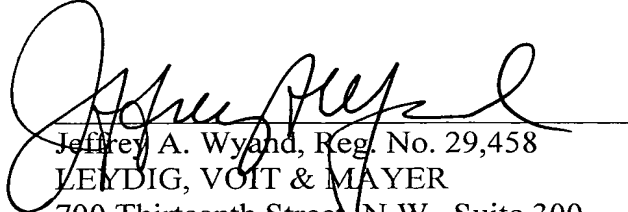
The claims that were rejected, examined claims 1, 3, 4, 6, 7, 10, and 11, were rejected as anticipated by a non-patent publication by Saito. The current inventors are three of the four authors of the non-patent publication. The rejection is respectfully traversed.

While the publication cited in rejecting the claims is certainly pertinent to the claimed invention, the publication describes the operation of an optical switch of the kind that is manufactured according to the invention. However, there is no description in the publication applied in rejecting claims of any method of manufacturing an optical switch, either a prior art method or the method according to the invention. There is no description of forming a starting groove nor of continually flexing the polymer film in order to cause cracking and the propagation of the crack to form a notch. There is no description of clamping plastically deformed parts of the polymer film to prevent interference with switching characteristics. Rather, what is described in the publication is the operation of an optical switch that already has a notch formed in it by displacement of the polymer film so that light propagating through an optical fiber is interrupted. While it may appear that there is a similarity between the method operation of the optical switch and the formation of the optical switch, it is apparent that without some disclosure in the publication relied upon as to how the notch in the polymer film is formed, the publication cannot possibly anticipate any of the rejected claims still pending as examined, and

especially not the method claims that were rejected, namely claims 7, 10, and 11.  
Therefore, upon reconsideration, all of the claims now pending should be allowed.

Prompt issuance of a Notice of Allowance is earnestly solicited.

Respectfully submitted,

  
Jeffrey A. Wyand, Reg. No. 29,458  
LENDIG, VOIT & MAYER  
700 Thirteenth Street, N.W., Suite 300  
Washington, DC 20005-3960  
(202) 737-6770 (telephone)  
(202) 737-6776 (facsimile)

Date: December 18, 2005  
JAW:ves

Amendment or ROA - Regular (Revised 2005 09 01)